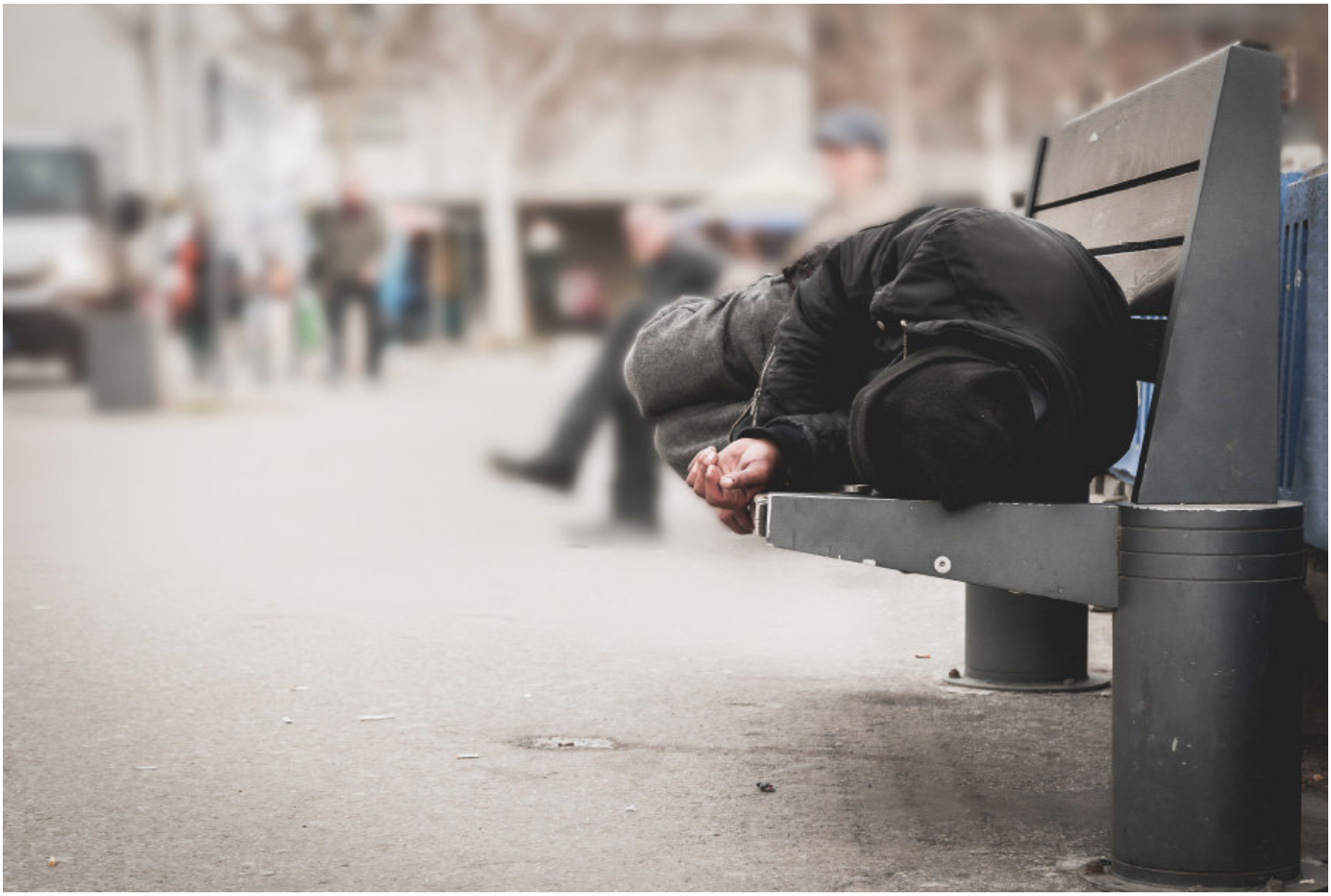
# Using AI to Assist Those Experiencing Homelessness in Austin

*A partnership between the University of Texas at Austin and the city looks at how AI can identify residents at risk of experiencing homelessness, as well as helping those currently in need find access to services.*

**BY BEN LEVINE (HTTPS://WWW.GOVTECH.COM/AUTHORS/BEN-LEVINE.HTML)** / JULY 17, 2020



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*MetroLab Network has partnered with* Government Technology *to bring its readers a segment called the MetroLab Innovation of the Month Series, which highlights impactful tech, data and innovation projects underway between cities and universities. If you'd like to learn more or contact the project leads, please contact MetroLab at info@metrolabnetwork.org for more information.*

In this month's installment of the Innovation of the Month series, we explore a collaboration between the University of Texas at Austin and the city of Austin, involving leveraging AI to improve the lives of people experiencing homelessness. MetroLab's Ben Levine spoke with Sherri R. Greenberg from the UT-Austin LBJ School of Public Affairs; Min Kyung Lee, Stephen C. Slota and Kenneth R. Fleischmann from the UT-Austin School of Information; James Snow from the city of Austin Public Works Department; and Jonathan Tomko from the city of Austin Neighborhood Housing and Community Development Department about the background and development of their project.

**Ben Levine:** Can you describe the origin and objective of this project and who has been involved in it?

**Ken Fleischmann:** This project is funded by Good Systems, a University of Texas Grand Challenge. Good Systems is one of the three Bridging Barriers Grand Challenges at the University of Texas at Austin. Bridging Barriers is a Presidential initiative, funded by the Provost's Office and administered by the Office of the Vice President for Research. The goal of Good Systems, of which I am founding chair, is to design AI technologies that benefit society. We define good systems as human-AI partnerships that address the needs and values of society.

Good Systems is funding seven collaborative research projects between Good Systems researchers across the UT-Austin campus and city of Austin staff. Many of these projects, including ours, emerged from a research project design workshop that Good Systems and the city of Austin jointly organized. The workshop organizers included, from UT-Austin, Deputy VP for Research Jennifer Lyon Gardner, Bridging Barriers Executive Director Tessa Green, Bridging Barriers Events Program Coordinator Alison Fiorenza, Julie Schell and the School of Design and Creative Technologies Extension Team, Junfeng Jiao, Sherri Greenberg, and me; and, from the city of Austin, Charles Purma III, Ted Lehr and Sara Smith. The lead contacts in maintaining the close

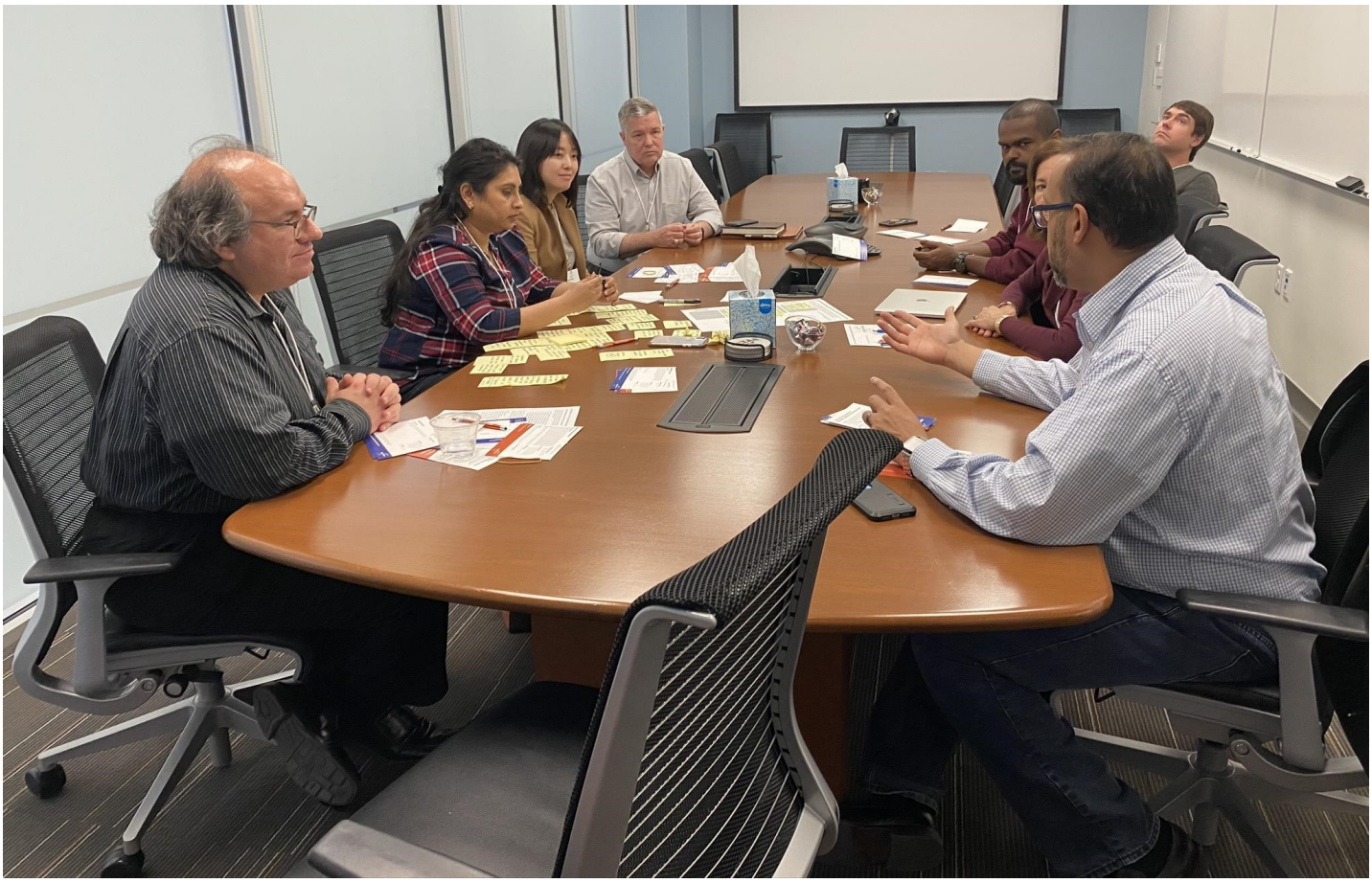
collaborative relationship between Good Systems and the ciity of Austin are Sara Smith from the city and UT-Austin Good Systems Network Relationship Manager Andrea Christelle.

Each project leverages AI and interdisciplinary expertise to develop new findings and tools that can contribute to our respective fields and improve the lives of Austin residents.

**Sherri Greenberg:** The particular focus of our project is to leverage AI to benefit one of our most vulnerable communities: Austin residents who are experiencing homelessness. Our interdisciplinary team consists of researchers from the LBJ School of Public Affairs and the School of Information at the University of Texas at Austin, and multiple departments at the city of Austin and Travis County, including Public Works, Housing, Technology, Innovation, Public Health and Emergency Medical Services. Our aims are to understand the information and service needs of people experiencing homelessness; to understand the information needs of agencies serving people experiencing homelessness; to use AI to empower people experiencing homelessess; and to assist agencies.

**Levine:** There are many factors contributing to and related to homelessness. Which of them are you focused on?

**Greenberg:** We describe homelessness as a “wicked problem” due to its complexity, heterogeneous stakeholders and interested parties across governments and nonprofits. Homelessness is experienced as a complex and multi-dimensional continuum, ranging from housing instability to reintegration from incarceration, couch-surfing to street homelessness, and episodic to chronic homelessness, wherein individuals move to, from and across these categories dynamically. We aim to use AI to help predict populations who are susceptible to entering the homelessness continuum and to help provide services to people who are experiencing some form of homelessness. The goal of our project is to study how to better provide wrap-around services to people on the homelessness continuum in the city of Austin, as well as how to assist local governments and nonprofits seeking to serve those individuals.



*First team meeting at the Research Project Design Workshop (left to right around table): Ken Fleischmann, Divya Rathanlal, Min Lee, James Snow, Jonathan Tomko, Nitin Verma, Sherri Greenberg and Khalil Bholat.*

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**Levine:** How has COVID-19 impacted homelessness in Austin? What new research questions have arisen as a result of the pandemic?

**James Snow:** COVID-19 has impacted people experiencing homelessness in Austin by disrupting the system they have developed to survive while living on the streets of Austin and Travis County. Obtaining food and water, showers, cash for immediate needs, clothing, and assistance with resources all depend on someone's ability to go to a location via public transportation or find a ride in a personal vehicle. When the shutdown occurred in April, access to food and water was immediately impacted as people experiencing homelessness could no longer enter buildings, and staff were not at work to provide services.

We also are hearing that families are coming to agreements with landlords and simply moving out, instead of waiting for an eviction to be on their credit history, which could affect them for the next seven to 10 years. The individuals impacted by voluntarily vacating their homes will increase the number of people experiencing homelessness. Furthermore, assistance programs may not be available since the family would not have an eviction record necessary to qualify for assistance. This is the epitome of being between a rock and a hard place.

**Jonathan Tomko:** People experiencing homelessness are being hit hard by COVID-19. In addition to possible infection from having to live without basic facilities, such as hand-washing stations, they are having to compete with other households who have suddenly become housing or food insecure. The city has offered new services to prevent a crisis, including more toilets, showers and free meals. A mobile hygiene clinic also has been launched. These efforts could lead to better outcomes for many and help people obtain more permanent shelter. But how could technology be a part of the solution? Could it help the city and its community partners be more proactive and less reactive, or better understand where there may be gaps in the system? Could it help optimize resources to leverage resources and efficiencies to serve more needs with less?

**Snow:** Yes, research could measure this impact on the social service agencies and their metrics in accordance to grant requirements, as well as the impact of those locations that could not close, such as hospitals and other public safety services. Policy and eligibility also can be tracked to see the impact on those who voluntarily vacated their homes, instead of waiting for an eviction.

**Levine:** How do you leverage AI to address these factors? What will your research approach entail?

**Min Lee:** We will apply AI to empower individuals experiencing homelessness and assist agencies. To do this, we will leverage numerous data sets provided by the city of Austin and other government and nonprofit partners. Applying time-series and clustering modeling and other general predictive modeling techniques, we will better understand the factors contributing to homelessness and identify gaps in social services that, when filled, can empower people on this continuum. Our AI research will lead to refinements to user-facing and social service provider-facing systems. We also will compare where social services are provided and where they are needed most. The

resulting AI-based tools will help decision-makers identify where services are most needed and how to deploy those services, and to offer personalized recommendations to individuals on the homelessness continuum.

**Levine:** How will the city use your research to address the problem of homelessness? Could other cities benefit from this research as well?

**Tomko:** Our research can assist with identifying people at risk of becoming homeless and intervene proactively instead of reactively. The costs of addressing homelessness after the fact are much greater than before someone becomes homeless. There are additional barriers; health conditions can become more acute on the streets and services become more of a triage system.

Other cities are asking themselves the same questions. Due to the fragmented nature of social service providers, each plays a critical role and has core competencies that are part of the overall solution. Can AI help cities become more proactive, optimize resources throughout a system, clarify roles and leverage resources to provide better services for those experiencing homelessness and the community at large?

**Levine:** What are your next steps? Where do you see the project going from here?

**Steve Slota:** We see our research as helping consolidate existing data and giving voice to the concerns and practices of relevant stakeholders, including those providing services and those needing services. Addressing current gaps in policy and services relevant to homelessness requires an interdisciplinary approach that is both predictive and cumulative, and qualitative and quantitative. Our work will enable better coordination between existing services and help identify areas of exceptional need that existing services are not reaching.

**Fleischmann:** At the programmatic level, we also hope that the collaborations that we are building between Good Systems, a UT Grand Challenge and the city of Austin can serve as a model for other university-city partnerships. There is increased enthusiasm for fostering such partnerships here in Austin, and we are keen to see this trend continue statewide, nationally and internationally.